

Storytelling for Promoting Colorectal Cancer Screening Among Underserved Latina Women: A Randomized Pilot Study

Linda K. Larkey, PhD, Ana Maria Lopez, MD, MPH, FACP, Archana Minnal, MPH, and Julie Gonzalez, MPA



Background: In a low socioeconomic-status population of Latina women, we evaluated the potential of storytelling (ST) as a culturally aligned narrative method to promote colorectal cancer (CRC) prevention and screening, compared to a risk tool (RT)-based intervention.

Methods: Seventy-eight women were randomized in this pilot study to one of two brief interventions to communicate CRC risk reduction options: ST or an RT. Measures of behavioral intentions relative to CRC prevention and screening were obtained following the intervention.

Results: Mean scores for intent to obtain and recommend endoscopy to others were significantly better for participants receiving ST than RT ($P = .038$ and $P = .011$, respectively). All participants expressed intent to increase fruit and vegetable consumption and physical activity in response to interventions. Post-intervention perceptions of cancer risk and fear of CRC were not significantly different for participants receiving ST compared with RT. Pre- to post-intervention perceptions of risk increased in ST and decreased in RT, while decreases in fear were similar across both intervention groups.

Conclusions: Storytelling may be an effective approach for changing CRC risk-related behavioral intentions among Latinas. Mediating factors (such as perceived risk or fear) often used to predict behavior change may not adequately explain the potential persuasive mechanisms of storytelling.

Introduction

Although rates of most cancers are generally lower among Latinos, certain cancer-related risk factors and screening deficits place this group at increasing risk for cancer.¹ Breast cancer and colorectal cancer (CRC) place first and third, respectively, for cancer mortality among Latina women.² Lower rates of cancer screening contribute to the trend of late-stage detection among Latinos, especially for CRC and breast cancer.^{2,3}

The screening rates of CRC and the readiness to obtain these screenings are particularly low in the Latino population, most especially among those with lower socioeconomic status and poor access to health care.^{2,4} Given the potential for colonoscopy to prevent cancer when polyps are detected and removed before cancer

develops, endoscopic screening becomes even more important as a prevention strategy.⁵

In addition to screening, the American Cancer Society and the National Cancer Institute both recommend increasing activity and consumption of fruits and vegetables as strategies to reduce the risk for cancer, two important risk factors associated in general with cancer and especially for CRC.⁶ Arizona data from the 2003 Behavioral Risk Factor Surveillance Survey⁷ indicate a larger percentage of Latinos are not meeting the goal of 5 or more servings of fruits and vegetables daily (80.7% compared with 77.4% non-Hispanic), and 57.9% of Latinos (compared with 49.9% of all respondents) in Arizona report not meeting recommendations for physical activity levels. Latinos are more likely to be obese (24.4% compared with 19.2% of non-Hispanics). Thus, the need to develop programs that will be effective in promoting healthier lifestyles and screening behaviors regarding CRC is becoming increasingly important in this population.

The Promotora Approach and Storytelling

Community health advisors (CHAs) have been used for decades to improve health knowledge and behaviors in underserved populations and rural communities.⁸ One of the greatest strengths of this approach is that CHAs (or *promotoras de salud*, the term used among Latinos,

From the Department of Family and Community Medicine (LKL, AM, JG) and the Department of Hematology and Oncology (AML) at the University of Arizona College of Medicine; and the Arizona Cancer Center at the University of Arizona (LKL, AM, JG).

Archana Minnal, MPH, is now with the Maternal, Child and Adolescent Health Program at the California Department of Public Health. Submitted January 8, 2008; accepted July 1, 2008.

Address correspondence to Linda K. Larkey, PhD, Department of Family and Community Medicine, University of Arizona College of Medicine, Arizona Cancer Center, 10510 N. 92nd Street, Suite 100, Scottsdale, AZ 85258. E-mail: larkeylite@msn.com

Abbreviations used in the paper: CRC = colorectal cancer; ST = storytelling; RT = risk tool; HCRI-G = Harvard Cancer Risk Index-General.

often shortened to *promotoras*) are members of their own communities and have the natural ability to reach others with culturally sensitive approaches by tailoring their methods and messages to meet the special needs of their friends and neighbors.^{9,10}

CHAs are considered by many researchers to be more effective than professionals in influencing behavior change and overcoming these barriers because of the large number of characteristics they share with the target population.¹⁰ These commonalities include social, historical, environmental, and ethnic characteristics as well as verbal and nonverbal language, an understanding of the target population's health beliefs and barriers to preventive behaviors,^{8,11} and enhanced empathy with and responsibility toward the population and its unique and complex health care needs.¹² Thus, CHAs are able to communicate more effectively in the cultural language of their community. This inherent cultural understanding and the face-to-face flexibility brought by the CHAs allows them to promote health messages in ways that parallel the cultural norms. Specifically related to many traditional cultures, they present a more culturally integrated approach by presenting health-related information in the oral tradition in the contexts of their lives, families, and communities.

The CHA approach is commonly used for cancer prevention and screening promotion programs. In general, programs such as *Por la Vida*¹³ and *Compañeros en la Salud*¹⁴ that reflect cultural norms of the community and develop trust through local representatives from those communities have been shown to be successful in promoting breast and cervical cancer screening among Latina women of the southwestern United States. Less has been done to test culturally relevant ways to encourage CRC screening specifically, but lessons learned from cancer screening in general might apply to some degree to CRC screening.

One important way that cultural elements are represented and communicated is through the stories told by *promotoras* and by participants in the classes or groups receiving the educational interventions. Sharing personal experiences and examples from the lives of friends and family members has been observed among Latina women for advocating for clinical trials, encouraging dietary changes, and utilizing cancer screening.^{12,15} We propose using storytelling (ST) as a more specific mode of sharing personal experiences, based on evidence of its value as an educational tool and its use of role modeling, socialization, and positive acculturation in a variety of behavior change contexts.¹⁶⁻¹⁹

Stories are narrative accounts of causally linked sets of events and characters, whether true or fictitious, and closing with a sense of completeness. Vivid, emotionally engaging stories "enable a leap in understanding by the audience so as to grasp the possibility of change" for self or the community.²⁰ Using fiction has

also been shown to impact memory and influence attitudes through vivid characters and story lines more powerfully than unadorned factual information.^{16,17,21} Thus, stories may not only serve to communicate culturally familiar details, but also have inherent qualities that may enhance persuasive impact.

Risk Tool-Based Information

Most health behavior theories suggest that perception of personal risk is necessary (but not sufficient) for a person to change behavior (eg, screening for early detection or action to prevent).²²⁻²⁴ For this reason, efforts to promote health behaviors often begin with a message that communicates information about risk, including information on behaviors that increase or decrease chances of a negative outcome. Such information may not only increase knowledge, but also "facilitate [informed] decision making, motivate new [healthy] behaviors, and change existing [unhealthy] behaviors."²² Perceived risk for cancer is generally seen as a factor motivating cancer screening but with some mixed results and with variation according to type screening.²⁴⁻²⁶ Similar uneven associations between perceived risk and screening behavior seem to hold for low-income and ethnic minority populations.²⁶

In both community and clinical settings, use of a risk assessment tool to communicate either an absolute, numeric risk or a relative risk has been generally effective for informing and correcting perceptions of risk for CRC, but it is not necessarily effective for achieving screening outcomes. Among the usual choices for communicating risk based on an indexing of risk factors, "gambling odds" or frequency formats (eg, 1 chance in x), visual formats, or relative terms (chances compared to others your age) seem to be most readily understood.^{27,28}

An example of a cancer risk tool (RT) adapted for wide application is the Harvard Cancer Risk Index-General (HCRI-G). It serves as a quick assessment tool and as instant feedback of personalized cancer risk in numeric, relative terms (ie, risk level compared to similar others the same age). At the same time, the HCRI-G can be used as an educational tool that teaches about specific risk factors that are important for prevention or early detection of cancer.

Despite the growing popularity and appeal of using parsimonious risk factor-based tools for communicating risk information,^{29,30} there are potential pitfalls. Communicating personalized risk information via numeric data may not be well understood among populations with low numeracy skills^{27,31} and, when it is understood, may or may not correct misperceptions of risk.^{32,33} Many lay people, especially those less educated, do not accurately interpret or recall most of the numerical presentations of risk.²⁸ Moreover, efforts to correct perceptions of risk occasionally backfire when initial,

uninformed estimates of personal risk for cancer are higher than the corrected risk perception after education, thus resulting in decreased motivation to screen.

ST for Risk Information

ST methods of communicating risk and prevention information stand in contrast to the usual numeric methods. Rather than evoking the logical language of numbers, comparisons, and lists of weighted risk factors, a story can embed information in the context of fictitious but believable characters and situations. Specific information about risk factors and the effects of changing behavior on cancer risk can be conveyed through narrative rather than utilizing lists of factors and numbers. The same information can be communicated while being framed by culturally relevant context and characters. Identification with the story with culturally familiar details and circumstances may be key to engagement in the message,³⁴ making it more likely that individuals will continue to process the information as being personally relevant rather than ignore it.

For example, stories have been used successfully in the PROMISE program focusing on HIV prevention to communicate risk and suggest ways to alter behavior to lower risk. Lay members in the HIV target population deliver the stories. The method is theorized to work by tailoring the interventions to the community profile and by including elements in the story to not only help participants identify with the characters and story lines, but also provide social modeling of effective action to reduce risk.³⁵

Other examples show promise in reaching special populations through culturally aligned stories. In a study that utilized ST to teach African American women about breast health, women were able to identify fears, learn correct information, and validate their experiences with others who shared their culture and values.³⁶ There is also evidence that using stories may help overcome resistance to messages that might create anxiety and promote prevention as an important practice.¹⁸ Particularly for people who have had low prior involvement in the health issue,³⁷ capturing attention may better be achieved through an engaging story rather than with direct risk information.

Our proposed methods for communicating about cancer risk and prevention are drawn from years of observing and documenting methods used by *promotoras*. Numeric data are rarely used in these contexts; rather, personal stories are shared from the heart with content familiar to and emotionally evocative for the listener. We chose ST to test as an alternative, potentially more culturally aligned method for communicating risk information and the call to change behavior. This method was compared in a pilot study to a standard RT-based method, the HCRI-G, to examine effects on behavioral intentions regarding CRC prevention and screening.

Hypotheses

We examined whether three key behaviors — CRC screening, fruit and vegetable consumption, and physical activity — related to prevention of CRC might be more effectively promoted using ST rather than RT-based communication methods. The CRC screening method promoted in our interventions included both colonoscopy and flexible sigmoidoscopy. Although the evidence is strong for primary prevention when polyps are found and removed, and colonoscopy is considered the best currently available tool to detect lesions and remove polyps,³⁸ a high proportion of our target population was expected to be uninsured or underinsured. Colonoscopy is generally less accessible than flexible sigmoidoscopy in underinsured populations, so both were suggested and encouraged as options. Evidence of vegetable consumption associated with reduced risk for CRC^{39,40} led us to choose the more broadly promoted target of increasing fruits and vegetables in the diet. Physical activity was also selected for promotion as a factor for reducing CRC risk, given the strong evidence of the association⁶ and the recommended clinical guidelines of the American Gastroenterological Association.⁴¹ The following hypotheses were proposed to be tested in a pilot study to examine the potential of ST for promoting CRC prevention behaviors in this cultural context:

Hypothesis 1: Latina women aged 50 years or older who are due for CRC screening and are exposed to ST vs an RT-based educational intervention will demonstrate greater intent to obtain endoscopy.

Hypothesis 2: Latina women of any age who are exposed to ST vs an RT-based educational intervention will express greater intent to eat more fruits and vegetables and increase physical activity.

As our past work with *promotoras* and the Latino population taught us, a likely outcome of teaching prevention information is that women would then promote this important prevention message to others within the family and friendship network, especially in the culturally socializing context of ST. We added this hypothesis accordingly:

Hypothesis 3: Latina women of any age exposed to ST vs an RT-based cancer prevention intervention will more often express intent to recommend endoscopy to others.

Methods

Development of Interventions and Translations

The story (the central feature of the ST intervention) was written by a team of *promotoras* and other female staff through an iterative process of discussing personal experiences as well as stories from friends and relatives and creating a composite story of a single fictional family. The elements of the story were selected by this team to reflect values and themes of the Latino culture, with an emphasis on women's experiences to

keep the stories aligned to one gender's point of view. The choice to limit this pilot study to the female/Latina point of view was based on an effort to keep the study population more homogenous, with a narrow field of ethnic and gender culture to which to tie the story content. Events and dialogue were designed to teach about general cancer risk factor information and the potential for changing risk for cancer when modifiable risk factors are adjusted. CRC-specific risk information and screening guidelines were included, with details of families and situations common to Latinos. For example, during a family crisis involving two adult daughters' conversations about their father's scheduled colonoscopy, one of their children brings home a school assignment where he has to keep track of the fruits and vegetables eaten during family meals. In this story line, drama and tension are created by proposing a potential threat (possible CRC) to the father, suspense is created as the information about risk factors is conveyed through a number of interactions in the family and in health care encounters, and eventually tension relief is created as the listener discovers the father does not have cancer. The point of the story was that all family members, including women, need to be screened at age 50 years and older for early detection, and even prevention, of CRC.

The RT-based intervention was based on the HCRI-G, a risk factor assessment tool communicating relative risk for cancer, also specifying CRC risk factors and screening guidelines. This tool has been tested with low-literate and Latino populations⁴² and provides a composite risk assessment tool weighted across the most prevalent cancers and associated risk factor weights.⁶ This method of communicating personal risk is visual, easy to understand, and personalized (defining one's own risk level relative to similar age others, marked as a number on a bar graph). The primary purpose for using the HCRI-G was as a teaching tool to communicate the key modifiable risk factors and to initiate a discussion about what could be done to improve the CRC risk profile.

The HCRI-G and the story were translated to Spanish and back-translated to English for comparison of meaning across translations. The use of back-translation is a well-accepted method of double checking that the meaning of the translation is equivalent to the original.⁴³ We adapted the method so that a team of 4 to 5 bilingual evaluators, including both English- and Spanish-language dominant speakers, participated in the process. Wherever any wording differences occurred in the back-translation compared with the English original, both English and Spanish versions were reviewed by this team of evaluators. Discrepancies in any subtle meaning across translations were adjusted in Spanish until all members agreed that the word choices were clearly representative of the English version. The same methods were used to translate the survey instrument

(described below), including demographic information and all scales and outcome measures.

Recruitment and Intervention

Latina women were contacted through a number of recruitment sites that were part of a larger *promotora*-led intervention study. At these sites, women were invited to participate in this brief intervention pilot study prior to entering the larger intervention. Women were eligible for the current study if they were Latina, over 18 years of age, due for CRC screening if over age 50, and willing to be randomized and participate in a session that included a short educational intervention and a pre- and post-questionnaire. A total of 78 women (47 women aged ≥ 50 years) agreed to participate in this pilot study.

Once informed consent was obtained, participants were randomized to either ST ($n = 38$) or RT ($n = 40$) intervention and were asked a series of questions to assess baseline levels of perceived cancer risk, CRC risk (and CRC perceived severity), fear of CRC, and intent to recommend or obtain endoscopy (colonoscopy or flexible sigmoidoscopy), if due. Initially, 32 women were recruited, and after the first data were reviewed, three other questions were added to the survey to enrich the study and clarify endpoints (see "Measures" below). This type of midstream change in design is consistent with a participatory action research method in which feedback from participants shapes the research in progress, a pattern that is possible and preferred with studies in community settings.⁴⁴

Women randomized to the ST intervention listened to a story in an individual, face-to-face context in English or Spanish (depending on stated preference of the participant) read by a *promotora* who was culturally similar to the participant (Latina). The *promotoras* read the story with dramatic style, playing the parts of the characters in dialogue. The story reflected the socioeconomic profile and culture of participants in the pilot study and was read to them in their preferred language, either English or Spanish.

The HCRI-G questions were read to individual participants, also in an individual, face-to-face context, in English or Spanish according to the preference of the participant. After a participant answered all questions, the *promotora* assisted the individual through scoring, discussing relative risk for cancer compared to others the same age and gender (ie, pointing out the total score on a graded 5-point Likert-style ruler scale showing a range from Much Below Average to Much Above Average to describe the risk level). Each of the risk factors addressed in the HCRI-G were also mentioned in the story to assure parallel information in both arms of the study.

After each standardized intervention, story, or HCRI-G, the *promotora* discussed with each participant the modifiable risk factors that, if changed, could reduce

risk for cancer and, more specifically, for CRC. In both interventions, the *promotora* described endoscopic options and included the message that CRC may be prevented when polyps are removed during colonoscopy.

All participants selected Spanish for the intervention and questionnaires. Each study participant took 8 to 15 minutes to experience the intervention. Together with informed consent and pre- and post-questionnaires, participant involvement was 30 to 40 minutes for the entire procedure.

Mediation of Variable Measures

Studies that include risk information often examine responses such as perceptions of risk and affective response to the message. ST has not been used specifically in the context of communicating cancer risk information, so the variables that might make a difference have not yet been defined. We chose to add measures to assess perceptions of risk and fear to examine possible differences in mediating factors that may affect how the two interventions impact intentional outcomes.

Perceived Risk for Cancer

Participants' perceived risk for cancer was assessed pre- and post-intervention, using the question used in the original Internet-based HCRI teaching/risk assessment instrument⁴⁵ that asks: "Compared to other people my age, my chances for getting cancer are..." Response choices were "much below average" and "below average," up to "much above average" arranged on a 5-point Likert-style scale.

Fear of Colorectal Cancer

Fear of CRC was assessed pre- and post-intervention using three items drawn from the breast cancer fear scale⁴⁶ and adapted for CRC: "When I think about colorectal cancer..." Response choices were "I feel nervous," "It scares me," and "I feel uneasy," with a 5-point Likert-style agree/disagree response scale.

Outcome Measures

Intent to Obtain Endoscopy

Intent to obtain endoscopy within the next 2 years was assessed by asking "Do you plan on having a sigmoidoscopy or colonoscopy in the next two years?" with "yes" or "no" response options.

Physical Activity and Fruit and Vegetable Consumption

Baseline levels of each were obtained with questions adapted from measures to provide global estimate servings per day and amount of moderate-to-vigorous physical activity. Baseline levels of fruit and vegetable consumption were estimated using a food frequency format.⁴⁷ Physical activity was estimated from a yes/no response to a question regarding activities that "make your heart rate

go up or make you breathe harder" and estimates of times per week and minutes per session.⁴⁸

After 32 women completed the pilot study, we noted that participants were spontaneously and enthusiastically reporting that they planned to discuss what they learned with others, family and friends. We reconsidered what else might be important to understanding CRC-related responses to the interventions, particularly the social context of family and friendship ties so important in Latino culture, and included additional questions, discussed below.

Intent to Recommend Colorectal Cancer Screening

A single question was asked to evaluate intentions to "recommend CRC screening to any of your female relatives or friends" with "yes" or "no" response options.

Data were analyzed using SPSS 14.0⁴⁹ (SPSS Inc, Chicago, IL) using *t* tests to examine hypothesized differences in outcome measures. The 3-item scale for measuring fear of CRC was reliable (Cronbach's alpha, .82 and .94 in pre- and post-intervention administration, respectively).

Results

Participant Profile

Of the 78 women completing the intervention, 47 were aged 50 years or older. Mean age of all participants was 49.84 years (ST group mean = 50.52 years, RT group mean = 49.16). Among the 78 participants, 42 (54%) were uninsured and 45 (64%) did not have a regular health care provider. Twenty-two (42%) reported less than \$15,000 annual household income, and 11 (22%) reported under \$25,000. A sixth-grade education or less was reported by 47%, while 10% completed 7th–8th grade and 30% attended high school. These demographic data and distributions across arms of study are presented in Table 1.

Baseline levels of fruit and vegetable consumption were much lower than the Behavioral Risk Factor Surveillance Survey (BRFSS) assessments of Latinos in Arizona, indicating 19.3% eat 5 or more servings per day. In our population, only 2.1% stated they eat 5 or more, and the mean servings per day were 1.70 (SD = 1.061). Mean minutes per week of moderate to vigorous activity for all participants across intervention groups was 71.53 (SD = 117.285). The large standard deviation is due to 8 participants whose activity levels were very high (250 to 600 minutes per week, consistent with comments from some of these participants who described that they held physically active jobs. When these are eliminated, mean minutes per week were 30.87 (SD = 32.52), with 16 women reporting no activity.

Baseline Assessment of Group Differences

The *t* tests run to examine equivalence for age, income, fruit and vegetable consumption, physical activity, and

regular provider and insurance status indicate that ST and RT groups were not significantly different at baseline. Similarly, perceptions of risk for cancer and fear of CRC were equivalent for both groups at baseline.

Outcomes

The primary outcome variable — intent to screen for CRC via endoscopy — was tested for significant difference in scores between ST and RT groups for women over 50 years of age ($n = 47$). Mean score for intent to obtain endoscopy was significantly lower (with lower score indicating greater intent) for the ST group than for the RT group ($P = .038$) (Table 2). Intent to increase physical activity and increase consumption of fruits and vegetables was examined for 78 participants, all ages. Responses were “yes” for all ST and RT participants, so evaluation of difference between groups was not possible for the second and third hypotheses. Intent to recommend CRC screening to others (the research question added after the first 32 participants, so that $n = 43$; 3 with missing data) was also significantly higher for women in the ST group than in the RT group ($P = .011$).

After the interventions, the mean score for perceived risk for cancer was greater in the ST group compared with the RT group, but not significantly so. Post-intervention scores for fear of CRC were essentially the same comparing these two groups, but fear decreased

significantly (as indicated by higher scores) for both groups combined ($P = .015$). Although there was no difference in fear of CRC between groups after exposure to the intervention, fear was substantially reduced for participants in both arms of study.

Discussion

Our pilot data suggest that intent to obtain endoscopy among women aged 50 years and older and, interestingly, to recommend endoscopy for others (when women of all ages are asked, including those younger than CRC screening age) was greater for Latinas exposed to the ST intervention than the RT-based intervention.

The staff who implemented this pilot study reported a great deal of emotional involvement from the women exposed to the story. Anecdotally we can report that women often would become so involved in the story that they would exclaim their relief when they discovered that “Papa” indeed did not have CRC. Perceptions of risk seemed to be differently affected by the two interventions, with the more emotionally charged ST intervention resulting in higher perceptions of risk than the RT intervention. Even so, both seemed to generate a reduction in fear so it is not clear what mechanisms influence intentions for screening relative to these interventions or how stories might potentially affect actual behavior. Additional factors not yet assessed that are unique to narrative may explain the difference.

Table 1. — Participant Demographics by Study Arm*

	All Participants (N = 78)	Storytelling Participants (n = 38)	Risk Tool Participants (n = 40)
Hispanic/Female	78	38	40
Age (mean)	49.84 yrs	50.52 yrs	49.16 yrs
Annual Household Income			
< \$15,000	22 (42%)	10 (42%)	12 (43%)
\$15,000 to \$24,999	11 (22%)	8 (33%)	3 (11%)
\$25,000 to \$34,999	11 (22%)	4 (17%)	7 (25%)
\$35,000 to \$44,999	5 (10%)	1 (4%)	4 (14%)
≥ \$45,000	3 (6%)	1 (4%)	2 (7%)
Missing	26	14	12
Insurance			
Covered by insurance	36 (46%)	20 (52%)	22 (55%)
No insurance	42 (54%)	18 (47%)	18 (45%)
Regular Health Care Provider			
Yes	25 (36%)	14 (39%)	11 (32%)
No	45 (64%)	22 (61%)	23 (68%)
Missing	8	2	6
Education			
0 – 6th grade	34 (47%)	17 (46%)	17 (47%)
7th – 8th grade	7 (10%)	5 (13%)	2 (6%)
9th – 12th grade	22 (30%)	8 (22%)	14 (39%)
Beyond high school	10 (14%)	7 (19%)	3 (8%)
Missing	5	1	4

* Valid percents reported, calculated without missing data.

Limitations

As a small pilot study in a community setting, there were limitations to the study. For example, our measures needed to be brief assessments based on larger multiple-item, validated scales, but these slimmer tools have not been validated. The assessment of fear with a 3-item scale adapted directly from a validated measure of breast cancer fear demonstrated initial reliability, but otherwise our single-item indicators depend on face validity. Although significant effects were distinguished between the interventions, the chosen assessments of proposed mediating variables do not provide much explanation for the effects. Also, in the community setting and with limited time for engagement, we lost the opportunity to fully follow up with those participants completing the HCRI-G. For those at higher levels of risk, there could have been more focus on colonoscopy as a better option for screening and diagnostic visualization of the colon. Larger studies with more elaborate interventions should be designed to include more detailed recommendations tailored to risk level.

Intent to screen is not always the best predictor of actual behavior, particularly for a difficult test such as flexible sigmoidoscopy or colonoscopy that requires planning, preparation, transportation, substantial time, and cost (for uninsured persons). Our results suggest only the first step of the process, the decision step, might be enhanced with a culturally relevant method of communication. Barriers to follow-through, such as lack of insurance or transportation, would likely dilute the effects of initial intentions. A program that encourages a decision to screen or change lifestyle behaviors would likely require logistical, financial, and social sup-

port, skills enhancement, and ongoing persuasive messages to achieve behavioral results.

Future studies need to explore more fully a set of proposed mediating factors (including factors implicated by the narrative paradigm such as the potential of story to build identification and engagement or to enhance cognitive processing)^{50,51} on CRC screening intentions as well as factors that may be specific to changing perceptions of social norms. Moreover, as the ST intervention model is explored further, actual screening behavior will need to be assessed among Latino men and women. A similar pilot study was recently completed that included men and provided more sensitive measures of dietary and physical activity change intentions.⁵² This study showed positive effects of ST compared to a RT intervention, suggesting further support for the potential of this method of health promotion while underscoring the need to take this research to the next step. Given the initial favorable results of these pilot studies, additional work to examine theoretically based variables' effects (going beyond the risk communication model) on actual behavioral outcomes is critical.

Conclusions

A recent survey of key Latino opinion leaders (researchers, scientists, and health service organization leaders) regarding cancer prevention and control for Latinos listed CRC as the second most important cancer site to address among this population, with recommendations for special emphasis on culturally competent risk communication.⁵³ As a first step to meet this challenge, we have taken the elements of cancer risk information and, more specifically, CRC risk factor informa-

Table 2. — Comparisons of Outcomes in Storytelling (ST) and Risk Tool-Based (RT) Interventions

	Pretest Mean	Posttest Mean	Difference Between RT and ST at Post-Intervention	P Value
Primary Outcome				
Intent to screen (over age 50 yrs)				
RT, n = 23	Not measured	*1.35 (SD .487)	.26	.038**
ST, n = 22	Not measured	*1.09 (SD .294)		
Added Outcome				
Intent to recommend (add'l)†				
RT, n = 24	Not measured	*1.25 (SD .442)	.25	.011**
ST, n = 19	Not measured	*1.00 (SD 1.00)		
Mediating Factors				
Perceived risk for cancer (all)‡				
RT, n = 40	2.80 (SD 1.07)	2.57 (SD .846)	.41	.072
ST, n = 37	2.81 (SD 1.02)	2.98 (SD 1.19)		
Fear of CRC (All)‡				
RT, n = 37	*1.78 (SD 1.01)	*2.31 (SD 1.30)	.04	.736
ST, n = 34	*1.98 (SD 1.08)	*2.35 (SD 1.31)		

* Lower score indicates higher attitude levels (ie, greater fear, greater intent).
 ** $P < .05$, equal variances not assumed.
 † "Add'l" indicates second phase participants only, after additional question was added.
 ‡ "All" indicates all participants, all ages and in first and second phase, were surveyed.

tion and incorporated these messages in the text of a story created by and for members of Latino culture.

Numeric-oriented risk messages have been used in community settings with mixed results regarding cancer prevention and screening results. In low-income Latino populations, health literacy and numeracy may limit the effectiveness of these messages. We stepped outside this numeric-oriented risk data paradigm to test a lay model for influencing behavioral intentions compared to the standard RT-based communication and didactic, factual teaching. ST may present a more coherent, culturally consistent method of communicating, fitting with the norms of *promotora* interventions.

The population of Latina women recruited into this pilot study was particularly “underserved”: they had low incomes and low levels of education, lacked insurance, and spoke mostly Spanish. The risk profile of this population, including low levels of fruit and vegetable consumption and poor compliance with CRC screening recommendations, poses even greater challenges for promoting cancer prevention and screening behaviors. Thus, the special profile of the test population needs to be taken into account as next steps are developed, recognizing that while the story approach was effective in this group, it may require different story elements in other groups or it may not be as effective. Our finding that women are encouraged to recommend screening to others, family, and friends, with only this single exposure to a story, is an important platform from which to design and further test similar interventions.

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Disclosures

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